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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,299	11/26/2003	Raffi Codilian	K35A1398	1174
35219 7590 07/12/2007 WESTERN DIGITAL TECHNOLOGIES, INC. ATTN: RENEE FRANKS 20511 LAKE FOREST DR. E-118H LAKE FOREST, CA 92630			EXAMINER SEMENENKO, YURIY	
			ART UNIT 2841	PAPER NUMBER
			MAIL DATE 07/12/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/724,299	Applicant(s) CODILIAN, RAFFI	
	Examiner Yuriy Semenenko	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date, _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

1. Amendment filed on 05/23/2007 has been entered.

In response to the Office Action dated 03/26/2007 the Applicants have amended claims 1, 16, 17 and 20. Claims 7-15 had been cancelled.

Claims 1-6 and 16-20 are now pending in the application.

Claims

2. Claims 1, 16 and 17 amendments, filed on 05/23/2007 are considered and acknowledged. The claims amendments are approved.

Claim Rejections - 35 USC § 112

3. Claim 1 amendments, filed on 05/23/2007 are considered and acknowledged. The claims amendments are approved. The claim rejection has been withdrawn.

Response to Arguments

4. Applicant's arguments filed on 05/23/2007 have been fully considered but they are not persuasive.

4.1. In response to applicant's argument with respect to claims 1 and 16 that "indicators or line segments that are not on the mounting surface of a circuit board cannot teach or suggest such indicators" and "[I]n contrast, throughout prosecution, the Examiner has failed to show a single reference that includes any line segments on the mounting surface." The Examiner begin with general notes of two things: According to Webster's definition and (mathematics' definition) "surface is a plane or curved two-dimensional locus of points (as the boundary of a three-dimensional region)" and further "on the surface: to all outward appearances" (Merriam-Webster's Collegiate Dictionary,

Eleventh Edition, page 1257). Mounting surface is a surface used for mounting on it any parts of the assembly. Hence, mounting surface of the board body 11, Fig. 1 (Sakamoto) completely satisfied to this definition (please see Fig. 2 B and C). Next, any edges can be consider as a visual reference or "line indicators" (in using of the applicant's language). Further in opposite to the Applicant's statement " With reference to Sakamoto at Figures 1A and 1B, the edges of a radiation substrate 13A that is mounted on the opposite side as the electric component 10 are cited by the Examiner as showing the outer line segments", the Examiner never use a radiation substrate 13A in the rejections (see all of the Office Actions and especially Fig. 1*, below).

And furthermore, at time the invention was made, it was well known to use " line indicators" as a visual reference in alignment process during assembly (please see, for example, indicator lines on glass windows of the car (automobile industries) or in electronic assembly, (Sigler, (Patent #5065092), column 7, lines 46-50).

Further, if the prior art structure (a disk drive printed circuit board, as Sakamoto disclosed in Fig. 1, board body, a mounting surface disposed upon the board body, and component-dedicated alignment line indicators visibly disposed at the mounting surface for aligning the disk drive electrical component at the mounting surface, segments with the first and second inner line and so on) is capable of performing the intended use (alignment of the electrical component 10, Fig. 1), then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) AND *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

In response to applicant's arguments against the references individually (Sakamoto et al. and Bonin et al.), the Applicant cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

4.2. Applicant's arguments with respect to dependent claims 2-6 and 17-20 are considered and acknowledged but they are not persuasive as based on arguments with respect to independent claims 1 and 16, respectively, as discussed above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5.1. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. (PGPub # 2002/0050397) hereinafter Sakamoto in view of Sigler et al. (Patent #5065092) hereinafter Sigler.

As to claim 1: Sakamoto discloses in Fig. 1 a disk drive printed circuit board 11 (page 7, [0114]) for use with a disk drive electrical component 16, Fig. 1A and Fig. 1* below, the disk drive electrical component 16, defining a rectangular perimeter, Fig. 1A, the perimeter including opposing first and second edges spaced apart a first lateral distance (see Fig. 1*, below), the perimeter further including opposing third and fourth edges extending between the first and second edges and spaced apart a second lateral distance, Fig. 1*, the perimeter further including opposing corners spaced apart a diagonal distance, (see Fig. 1*), the printed circuit board comprising: a board body 11, Fig. 1 (page 7, [0114]); a mounting surface disposed upon the board body; and component-dedicated alignment line indicators disposed at the mounting surface for visibly aligning the disk drive electrical component at the mounting surface (intended use) (component-dedicated alignment line indicators includes portions of the surface of the first and second insulating sheets P1 and P2, Fig. 2 (see also Fig. 2*, below)); the component-dedicated alignment line indicators including: first and second inner line segments (this two segments define the second opening portion 13, Fig. 1 (page 9,

[0139]) spaced apart a first inner spacing at least the first lateral distance and less than the diagonal distance (see Fig. 1*, below); third and fourth inner line segments extending between and perpendicular to the first and second inner line segments (this two segments define the second opening portion 13, Fig. 1 is formed in the first insulating sheet P1 (page 9, [0139]), the third and fourth inner line segments spaced apart a second inner spacing at least the second lateral distance and less than the diagonal distance (Fig. 1*); and first and second outer line segments (this two segments define the first opening portion OP, Fig. 1 is formed in the second insulating sheet P2 (page 9, [0140]), the second opening portion 13, Fig. 1 disposed parallel to the first and second inner line segments with the first and second inner line segments between the first and second outer line segments, the first and second outer line segments spaced apart a first outer spacing more than the first inner spacing and less than the diagonal distance, Fig. 1*.

Sakamoto discusses the invention substantially as claimed, except Sakamoto does not expressly disclose the first, second, third and fourth inner line segments disposed on the mounting surface for visibly aligning the disk drive electrical component at the mounting surface.

Sigler uses lines 720, Fig. 7 as a visual reference for operator (column 7, lines 46-54, Sigler). At time the invention was made, it was well known to use the line segments disposed on the mounting surface for visibly aligning the electrical component at the mounting surface.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for Sakamoto to include in his invention that the first, second, third and fourth inner line segments disposed on the mounting surface for visibly aligning the disk drive electrical component at the mounting surface, as taught by Sigler because Sigler teaches that such a configuration would result in the benefit for operator to visibly aligning the sensor chip (column 7, lines 46-54).

Further "the first, second, third and fourth inner line segments disposed on the mounting surface for visibly aligning the disk drive electrical component at the mounting surface" is a intended use. But a claim containing a "recitation with respect to the manner in

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which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). In this case, the prior art sets forth all of the structural limitations of the claims as explained in the rejections.

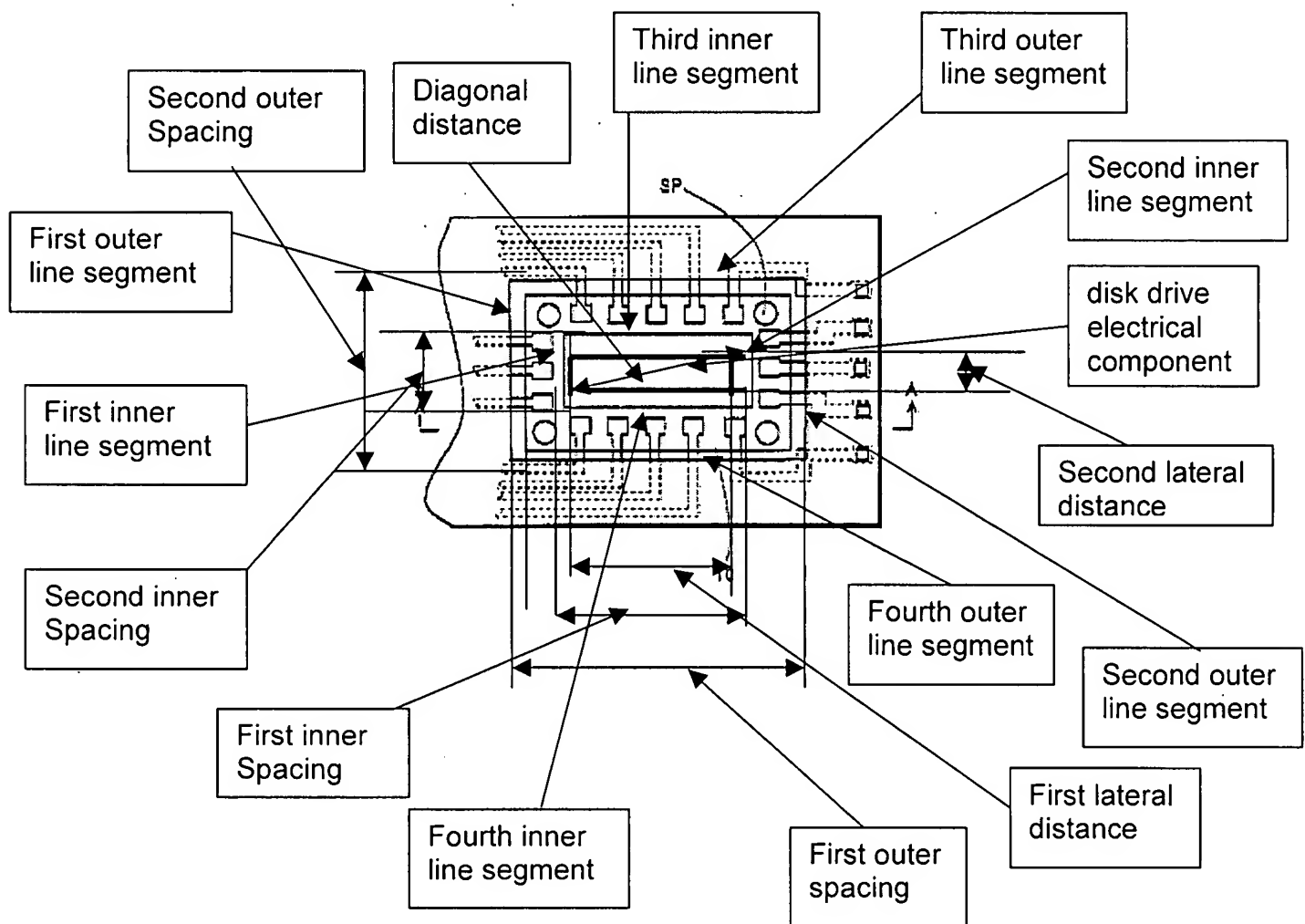


Fig. 1*

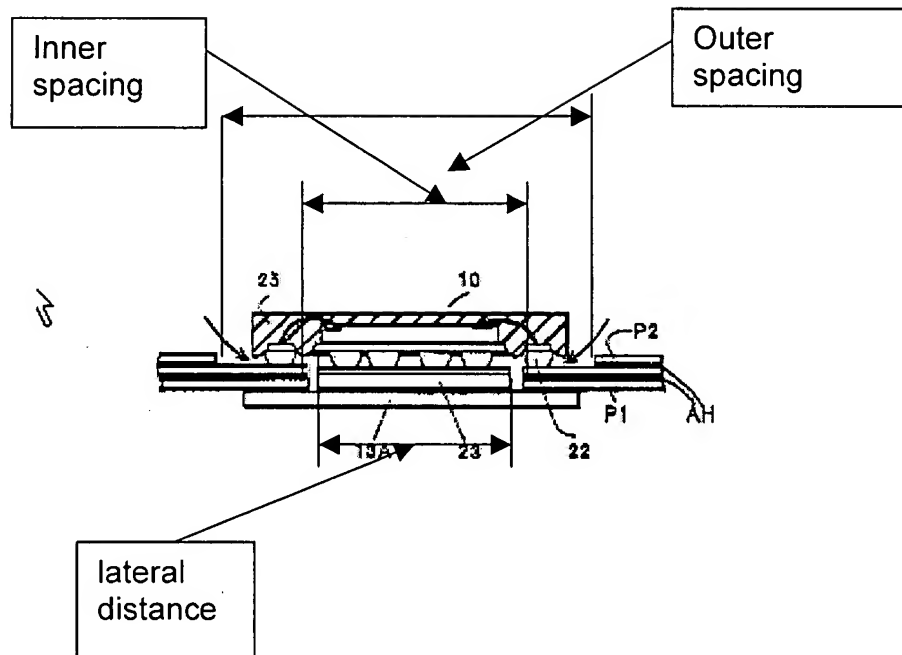


Fig.2*

As to claim 2: Sakamoto, as modified, discloses the printed circuit board having all of the claimed features as discussed above with respect claim 1, wherein the third and fourth inner line segments intersect the first-and second inner line segments (Fig. 1*).

As to claim 3: Sakamoto, as modified, discloses the printed circuit board having all of the claimed features as discussed above with respect claim 1, wherein the component-dedicated alignment line indicators (Fig. 1*) further includes a third outer line segment extending between and perpendicular to the first and second outer line segments, the third outer line segment is disposed with the third inner line segment between the third edge of the disk drive component and the third outer line segment, Fig. 1*.

As to claim 4: Sakamoto, as modified, discloses the printed circuit board having all of the claimed features as discussed above with respect claim 3, wherein the third outer line segment intersects the first and second outer line segments, Fig. 1*.

As to claims 5 and 6: Sakamoto, as modified, discloses the printed circuit board having all of the claimed features as discussed above with respect claim 1, wherein the component-dedicated alignment line indicators further includes third and fourth outer line segments extending between and perpendicular to the first and second outer line segments, the third and fourth inner line segments spaced apart a second outer spacing at least the second lateral distance and less than the diagonal distance, Fig. 1*, and wherein the third outer line segments intersect the first and second outer line segments, Fig. 1*.

5.2. Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto in view of Bonin et al. (Patent #6798609) hereinafter Bonin.

As to claim 16: Sakamoto discloses (page 4, [0078] and Fig. 25) a hard drive circuit board for use with a disk drive electrical component 16, Fig. 1A and Fig. 1*, above, with a rectangular mounting base, comprising: a board body 11, Fig. 1; a mounting surface on the board body; a first pair and a second pair of spaced apart, parallel inner line segments disposed upon the mounting surface, (see Fig. 1*, above), wherein the four inner line segments define a rectangle having a width and a length at least as large as a width and a length of the base of the electrical component, Fig. 1*; and a pair of outer line segments, Fig. 1* (first outer line segment and second outer line segment) disposed parallel to and spaced apart from the first pair of the inner line segments (first inner line segment and second inner line segment) with the first pair of the inner line segments being positioned between the pair of outer line segments, Fig. 1*,

except Sakamoto doesn't explicitly teach a board body is a rigid board body.

Bonin teaches a board body is a rigid board body, Fig. 1 and 2.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for Sakamoto to include in his invention that a board body is a rigid board body to provide more accuracy of positioning electrical component.

As to claim 17: Sakamoto, as modified, discloses the printed circuit board having all of the claimed features as discussed above with respect claim 16, further comprising an addition pair of outer line segments (third outer line segment and four outer line segment, Fig. 1*) disposed parallel to and spaced apart from the second pair of the inner line segments (third inner line segment and four inner line segment, Fig. 1*), with the second pair of the inner line segments being positioned between the additional pair of outer line segments.

As to claim 18: Sakamoto, as modified, discloses the printed circuit board having all of the claimed features as discussed above with respect claim 17 wherein the inner line segments and the outer line segments are visibly disposed on the mounting surface (Fig. 1*).

As to claim 19: Sakamoto discloses the printed circuit board having all of the claimed features as discussed above with respect claim 18. Although Sakamoto does not discloses the inner line segments and the outer line segments are applied to the mounting surface using silk screening, Examiner notes that a limitation "applied ... using silk screening," is a process limitation in the product claim. Such a process limitation defines the claimed invention over the prior art only to the degree that it defines the product itself. A process limitation cannot serve to patentably distinguish the product over the prior art, in the case that the product is the same as, or obvious over, the prior art. See Product-by-Process in MPEP 2113 and 2173.05(p) and *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985).

As to claim 20: Sakamoto discloses the printed circuit board having all of the claimed features as discussed above with respect claim 16,

except Sakamoto doesn't explicitly teach the rectangle formed by the four inner line segments is sized to circumscribe the base of the electrical component when the electrical component is centered within the four Inner line segments on the mounting surface,

Bonin teaches in Fig. 3 the rectangle formed by the four Inner line segments is sized to circumscribe the based of the electrical component 24 when the electrical component 24 is centered within the four Inner line segments.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for Sakamoto to include in his invention that the rectangle formed by the four Inner line segments is sized to circumscribe the base of the electrical component when the electrical component is centered within the four Inner line segments on the mounting surface to provide more accuracy of positioning electrical component.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

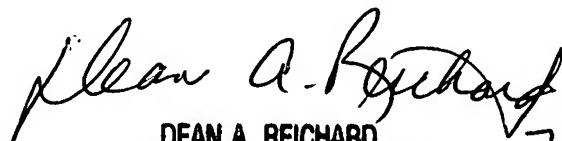
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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuriy Semenenko whose telephone number is (571) 272-6106. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean A. Reichard can be reached on (571)- 272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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